The Faculty of EOBU have published more than 40 research papers in reputed international journals with high Impact Factor in the last two years.

In the next few years the unit expects to continue its past trend of producing results from ongoing research programmes in chronobiology, evolutionary genetics and population ecology, leading to publication in top journals. In the areas of empirical investigations into the evolutionary genetics of circadian rhythms, the generality of life-history tradeoffs, and metapopulation dynamics, the work being done in the Unit is the first of its kind in the world, and expect to consolidate this position further.

The Centre's faculty have received a number of national and international recognitions for the work done in their areas.

The Centre has also filed about 11 patent applications in the last two years and 4 patents have been granted. Two patents of the Centre have been comercialized and licensed to three industries.

Foreign patents in scientific sectors

†1459. SHRI SURENDRA LATH: Will the Miniter of SICNECE AND TECHNOLOGY be pleased to state:

(a) the scientific sectors in which India achieved the foreign patents during the last five years along with the names of scientists and departments who contributed in this process;

(b) the steps being taken to promote the scientific research in India;

(c) the number of scientific research institutes under Central Government which are working in different fields in the country; and

(d) whether achievements of these scientific institutes are reviewed?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) Foreign patents obtained by Indian research institutions and organizations during the last five years are in the broad areas of chemistry, drugs and pharmaceuticals, engineering, biomedical engineering, medical sciences, biotechnology, information technology, material sciences and herbal formulations. These patents have emananted from the institutions of various Centre Government Departments/agencies such as Council of Scientific and Industrial Research (CSIR), Department of Science and

†Original notice of the question was received in Hindi.

Technology (DST), Department of Atomic Energy, Indian Council of Medical Research (ICMR) and Department of Information Technology, Central Government Public Sector Undertakings, private industries and universities with the involvement of a large number of scientists working in many different areas such as physical sciences, life sciences, nuclear sciences, different fields of engineering like information technology, materials technology, mechanical engineering, medical sciences and biotechnology.

(b) The Government of India, on its part, has taken a number of steps to rejuvenate and promote scientific research in universities and other scientific institutes of excellence. The Plan allocation of scientific departments has been doubled from about Rs. 12000 crores in the Ninth Plan to about Rs. 25000 crores in the Tenth Plan and it is planned to increase it further in the Eleventh Plan. The Research Infrastructure Programme of DST is a targeted programme to upgrade the laboratory infrastructure in universities and other higher educational institutions. Several institutions, centres of excellence and facilities in emerging and frontline areas have also been established; for example, in the areas of Brain Research, Marine Biotechnology, Stem Cell and Tissue Engineering, Soft Computing, Water Resources, Development, Nanophosphors, Display Technology, Fuel Cell Technology, Ultrafast Processes, Protein Research, etc. More recently, two new Indian Institutes of Science Education and Research (IISERs) have been set up at Kolkata and Pune which, apart from carrying out frontline and internationally-competitive research, would offer M.Sc. programmes in a multi-disciplinary and academically-flexible and research-oriented environment. Various agencies of Government of India have now attractive scholarship, fellowship and research support schemes for scientific manpower of all ages starting right from the school-level. The Government has also started some novel programmes to make our higher educational institutions professionally even more useful for developing technology. The DST programme of manpower development in collaboration with industry enhances the quality of technical education and makes it relevant for the industry through well-designed courses developed in close association with participating industries. A large network of S&T Entrepreneurship Parks and Technology Business Incubators has been estalished to synergize the technical expertise of engineering institutions and the commercial spirit of entrepreneurs for technology development and commercialization. A large number of technology development projects are now being jointly undertaken by higher educational institutions and

industries. All these are strong pointers towards improvement in indigenous capabilities for technology development. In addition, the specialized departments such as Defence Research and Development Organization (DRDO) have their strong in-house research infrastructure to carry out research in many different areas to meet specific needs and also in cutting edge areas. These departments also promote scientific research through extramural funding.

(c) There are 822 research institutes and centres under various Central Government Departments and Central Public Undertakings which are working in different areas of science and technology in the country.

(d) Yes, Sir.

High level scientific research

†1460. SHRI JAI PARKASH AGGARWAL: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether there is a lack of resources, autonomy of operation and investment for high level scientific researches in the Indian Research Institutes; and

(b) if so, the steps being taken by Government in this regard?

THE MINISTER OF SCIENCE AND TECHNOLOGY (SHRI KAPIL SIBAL): (a) and (b) No, Sir. The 9th Plan allocation was Rs. 457 crores and the B.E. the 10th Plan is Rs. 1193.16 crores and the proposed 11th Plan allocation is Rs. 3406 crores. Therefore, it is evident that the Plan Outlay have increased substantially over the years. The institutes make their research plans based on national priorities and frontier areas of Science & Technology at global level.

R&D in biotechnology

1461. SHRI RAVULA CHANDRA SEKAR REDDY: Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) whether Government are undertaking private research and development in biotechnology in public spirit and investments made for sustainable growth;

†Original notice of the question was received in Hindi.